

**Lawrence Livermore National Laboratory****HEALTH & ECOLOGICAL ASSESSMENT DIVISION**

August 19, 1996

To: Distribution

From: Bill Robison

Subject:  $^{137}\text{Cs}$  in Bikini Island Reverse Osmosis (RO) Drinking Water

The enclosed results of our analysis of  $^{137}\text{Cs}$  in the reverse osmosis (RO) drinking water at Bikini Island indicate no detectable activity. The Bikini RO water is indistinguishable from the city of Livermore, CA, drinking water.

This result is as expected because the lagoon water is taken from a pit in an area of relatively low  $^{137}\text{Cs}$  concentration in the overlying soil. Also, the water is extracted at a rate that far exceeds any leaching of  $^{137}\text{Cs}$  from the soil to the groundwater, when rainfall is adequate to produce a recharge of fresh water to the water table. The finalizing effect is that the RO system is, of course, designed to remove the ions of Na, K, Cl, etc., from ocean water to produce fresh water. This process is obviously very effective (you have fresh water), and it eliminates any Cs present just as it does Na, K, and other ions.

Best Regards,

William L. Robison  
Division Leader

WLR/rb

Enclosure

Distribution:

Jon Weisgall—Bikini Counsel  
Jack Niedenthal—Bikini Trust Liaison  
Tamaki Juda—Bikini Mayor  
Fabio Amaral—Bikini Dive Program  
Tom Bell—DOE  
Bill Jackson—DOE  
Lance Yamaguchi—Bechtel

# DATA REPORT SHEET

## Environmental Radionuclide Analysis Laboratory

**Request:** through Dr. Bill Robison  
Leader, HEA Division

**Task:**  $^{137}\text{Cs}$  analysis on two drinking water samples from Bikini Islands

**Project:** Marshall Islands

**Special Requirements:** None

**Method:** Precipitation on AMP and gamma-counting

**Comments:**

No  $^{137}\text{Cs}$  was detected in the two water samples from Bikini Island.

Data are listed with similar measurements made on City of Livermore (USA) drinking water through 1995.

The MDA's (Minimum Detectable Amount) are given as information values only and relate to the limitations on our present methodologies and the quantity of sample available for analysis.

Terry Hamilton, 8/14/96

**Table: Results of Analyses**

Sample	Radionuclide	Number of Measurements or Analyses	Measured Concentration ( $\text{Bq kg}^{-1}$ )	MDA ( $\text{Bq kg}^{-1}$ )
<b>Bikini Island</b>				
RO water	$^{137}\text{Cs}$	1 (18.6 kg)	not detectable	0.025
Tap water (BN kitchen)	$^{137}\text{Cs}$	1 (23.4 kg)	not detectable	0.027
<b>Livermore (Tap water)</b>				
Feb. '95	$^{137}\text{Cs}$	1	not detectable	0.010
March '95	$^{137}\text{Cs}$	1	not detectable	0.007
April '95	$^{137}\text{Cs}$	1	not detectable	0.011
May '95	$^{137}\text{Cs}$	1	not detectable	0.010
June '95	$^{137}\text{Cs}$	1	not detectable	0.010
July '95	$^{137}\text{Cs}$	1	not detectable	0.006
August '95	$^{137}\text{Cs}$	1	not detectable	0.021
Sep. '95	$^{137}\text{Cs}$	1	not detectable	0.010
	$^{137}\text{Cs}$			

Name(s) of Analyst(s): Terry Jokela, ERA labs

## HEALTH AND ECOLOGICAL ASSESSMENT DIVISION

August 19, 1996

Mr. R. Thomas Bell  
U.S. Department of Energy  
Office of International Health Programs, EH-63/270CC  
Washington, DC 20545

Dear Tom:

The following information is for the Oct/Nov 1996 field trip to Rongelap, Enewetak and Bikini Atolls. All dates are US days.

Personnel:

## LLNL

Bill Robison, Marshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob) Weidman, and Cleo Fry.

Marshallese assistants for LLNL support; see below who is needed at each atoll (does not include camp staff at Bikini Atoll).

Rongelap, Enewetak and Bikini—Yota Rilang, Ishmal John Jr., Willimat, Thompson David, Liki Dikrsalmon,. These five personnel will be needed for the Enewetak and Bikini legs to support the entire mission. If any one of these people are unavailable, we will need a replacement.

## UNIVERSITY OF FLORIDA

Earl Stone

## BECHTEL

Leo Migvar (Bikini only, for our program)

Tasks: Rongelap Atoll

1. Collect air samples and surface soils
2. T<sub>1/2</sub> trees on Rongelap & Kabelle Islands.

Mr. R Thomas Bell

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Tasks: Bikini Atoll

1. Collect samples from selected K experiments.
2. Collect ground water samples from old and new wells at Bikini Island.
3. Refertilize selected experiments.
4. Collect coconut samples from Eneu Island Quad (25A,B,C,D).
5. Relabel & sample permanent and grid coconut trees on Eneu Island.
6. Selected gamma measurement.
7. Collect selected soil profiles.
8. Service meteorological stations on Bikini and Eneu Islands.
9. Evaluate Nam Island for grid survey and barge (Tractor) access.

Tasks: Enewetak Atoll

1. Sample  $T_{1/2}$  trees on Belle, Clara, Daisy, Irene, and Enjebi Islands.
2. Collect samples from native trees for correlation coefficients & complete the survey grid on Aeji (Olive) Island.
3. Survey, establish, and sample 100 m grid for gamma spec. and 200 m grid for (Scaevola) vegetation and soil profiles on Enjebi (Janet) Island.
4. Sample garden plot on Enjebi (Janet) Island.
5. Gamma count the 100 m grid on Aeji (Olive) and Enjebi (Janet) Islands.

Schedule (U.S. Days):

Marshall Stuart, Henry Jones, Cindy Conrado, Robert Weidman and Cleo Fry.

Friday, October 25, Honolulu to Kwajalein—Air Mic

Monday, October 28, Kwajalein to Bikini—LCU

Tuesday night, October 29, Bikini to Rongelap —LCU

Wednesday, October 30 through Friday November 1, Rongelap Atoll—LCU

Friday night, November 1, Rongelap to Enewetak Atoll—LCU

Sunday, November 3 through Saturday, November 9 — Enewetak Atoll

Saturday night, November 9, Enewetak to Rongelap — LCU

Monday, November 11 through Tuesday, November 12— Rongelap Atoll

Tuesday night, November 12, Rongelap to Bikini — LCU

Wednesday, November 13 through Sunday, November 24 — Bikini Atoll

Sunday night, November 24, Bikini to Kwajalein—LCU

Monday, November 25, Kwajalein

Tuesday, November 26, Kwajalein to Honolulu—Air Mic

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Bill Robison, Leo Migvar

Monday, November 4, Honolulu to Kwajalein—Air Mic

Tuesday, November 5, Kwajalein to Bikini—AMI

November 5 through November 25, Bikini Atoll

Tuesday, November 26, Bikini to Kwajalein—AMI

Tuesday, November 26, Kwajalein to Honolulu—Air Mic

Earl Stone

Monday, November 13, Honolulu to Kwajalein—Air Mic

Tuesday, November 14, Kwajalein to Bikini—AMI

November 14 through November 25, Bikini Atoll

Tuesday, November 26, Bikini to Kwajalein—AMI

Tuesday, November 26, Kwajalein to Honolulu—Air Mic

Lodging:Honolulu: HobronMarshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob) Weidman, and  
Cleo Fry.

Thursday, October 24

Honolulu: Hilton Hawaiian Village

Bill Robison

Sunday, November 3

Holiday Inn Airport

Earl Stone

Sunday, November 12

Bill Robison, Earl Stone, Marshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob)  
Weidman, and Cleo FryTuesday, (arrival 0200 Wednesday morning) November 26 (Holiday Inn  
Airport) .

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Kwajalein:

Marshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob) Weidman, and Cleo Fry.

Friday through Sunday, October 25 through 27

Bill Robison, Leo Migvar

Monday, November 4

Earl Stone

Monday, November 13

Marshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob) Weidman, and Cleo Fry

Sunday and Monday, November 24 and 25

Vehicles:

Thursday, October 24—Van for Marshall Stuart, Henry Jones, Cindy Conrado, Robert (Bob) Weidman, and Cleo Fry

Van will be returned to the airport on Friday, October 25.

Sunday, November 3—Car for Bill Robison and Earl Stone

Rental car will be returned to the airport on Friday, November 4.

REQUIREMENTS: BECHTEL/DOEEnewetak and Bikini Atolls

1. Two (2 ea.) Walk-in freezers.
2. Two (2) Boston Whalers and Bikini aluminum boat.
3. All gear and supplies on the barge arriving Kwajalein.
4. All gear air shipped subsequent to barge shipment.
5. Eight new tri-walls from Stephan (5 on board, 3 at Kwajalein).
6. Plywood (1/4") to cover tri-walls aboard LCU 2000 - 3 ea.
7. Three 4-wheel drive trucks.

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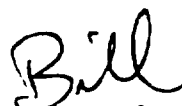
8. Track-layer bulldozer (Case) for use at Enewetak Atoll for brush clearing on Aeji and Enjebi Islands.  
Kubota tractor and backhoe for soil profiling.
9. Barge.
10. Wheeled crane to launch barge and lift tractor onto barge.
11. Mechanic and tractor operators, for period Nov. 1 through Nov. 14 on Enewetak.
12. Gasoline for whalers and diesel for trucks. Plenty of gas for boat runs to deploy survey personnel at Enewetak Atoll.

Rongelap Atoll

1. Generator to power high-volume air samplers.
2. Fuel for the generator.
3. Oil for the generator.
4. Truck for support on Rongelap to set up samplers.
5. Bulldozer for clearing area on Rongelap; only minor clearing may be required, but it could also be dense in the area we select.

Marshallese Support Staff for Enewetak, Rongelap and Bikini

Yota Rilang, Ishmal John Jr., Willimat, Thompson David, Liki Dikrsalmon.



William L. Robison

WLR/rb

cc: Bill Jackson, DOE PASO  
Lance Yamaguchi  
Joseph Shinn  
Earl Stone  
Judy Honda



Lawrence Livermore National Laboratory  
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FAX: (510) 423-6785

August 20, 1996

**TO: Tom Bell**

**TELE NO: 301-903-5728**

**FAX NO: 301-903-1413**

**FROM: Bill Robison**

**TELE NO: (510) 422-6621**

**SUBJECT: Bikini Drinking Water/Oct-Nov OPS Plan**

**MESSAGE: See attached. Hard Copies to follow.**

We are transmitting 08 page(s) (including this cover sheet). If the transmittal is not complete, please phone (510) 422-3885.